



EPIDEMIOLOGICAL PROFILE AND CLINICAL CHARACTERISTICS OF INFLAMMATORY BOWEL DISEASE IN JORDAN

*Suha Omran¹ | Husam Barakat²

¹ RN, MSN, DNSc, Adult Health Department/Faculty of Nursing, Jordan University of Science and Technology, PO Box 3030, Irbid, Jordan 22110. (*Corresponding Author)

² M.D., Gastroenterology Department/Ibn AlHaytham Hospital, Amman, Jordan.

ABSTRACT

Although there is little epidemiological data from developing countries about the incidence and prevalence of inflammatory bowel disease (IBD), its rates are increasing, indicating its appearance as a global disease. A retrospective chart review of all patients diagnosed with IBD in a gastrointestinal clinic in Central Jordan was carried out. Sixty-four patients with IBD were identified. Data collected include patients' characteristics, clinical presentation, endoscopic findings, histopathologies, and medical treatment. The age at diagnosis was between 20–30 years in both UC and CD. The female to male ratio was 2.67 for UC patients and 0.71 for CD patients. Patients with UC presented mainly with hematochezia (81.8%), while those with CD complained of abdominal pain (83.3%), and 13.6% of UC patients and 16.7% of CD patients reported extra intestinal manifestations. The area most involved was the left colon in UC (40.9%) and ileocolitis in CD patients (54.1%). The demographic and clinical presentation of IBD is the same as in other developing countries. While IBD is no longer a rare disease in Jordan, the epidemiological profile of IBD in Jordan is still unknown. Concerns with the etiology and the role of an increasingly Westernized life style may be associated with the continuing rise in IBD and warrants further study.

KEY WORDS: Inflammatory bowel disease; Ulcerative colitis; Crohn's disease.

Introduction

Inflammatory bowel disease (IBD) is a group of inflammatory conditions of the large and small intestine. It includes both ulcerative colitis (UC) and Crohn's disease (CD). Both conditions are life-long and follow an unpredictable relapsing and remitting course. Ulcerative colitis affects the colon (large intestine) only, while Crohn's disease can affect the entire digestive system, from the mouth to the anus (Baumgart and Carding, 2007; Baumgart and Sandbon, 2007; Xavier and Podolsky, 2007). The onset of the disease is usually between ages 15–30, but both younger and older individuals can be affected (Kappelman et al., 2007; Herrinton et al., 2008). The exact cause of IBD remains unknown; however, multiple systemic factors influence the progression of IBD, including genetic, environmental and immunologic factors (Kappelman et al., 2007; Herrinton et al., 2008; Loft us et al., 1999; Loft us et al., 2000; Loft us et al., 2007).

Recent studies have showed an increased incidence of IBD because of exogenous infections, use of antibiotics and diet changes. Medical treatment options have rapidly expanded in recent years. Current medical therapy is facilitative and supportive rather than curative. The principles of medical treatment are approximately the same for ulcerative colitis and Crohn's disease. Treatment emphasizes, besides drugs, the individuality of the therapeutic response (Kirsner, 1991). While ulcerative colitis and Crohn's disease are more common in developed countries than developing countries, according to recent studies, the incidence of IBD is increasing in developing countries (Rubin et al., 2000; Yoshida and Murata, 1990; Gismera and Aladren, 2008). In comparison to Western countries, there are limited data regarding the epidemiology, clinical features, and causes of IBD in these regions (Loft us 2007; Wang et al., 2007; Yang et al., 2001).

In Jordan, UC and CD are not rare and occur among all age groups, with a peak incidence in the second and third decades (Ghazzawe and Al-Marayat, 2007). Jordan has demonstrated a growing incidence of IBD, particularly UC. While IBD is a more well-defined disease in the industrialized countries, and the incidence of the disease is very well described in Western countries, very little is known about the disease in Jordan. Yet, there are reports of increasing IBD frequency in developing countries. As Jordan is now a country with varied ethnicities, additional studies that emphasize epidemiologic and clinical features of IBD are needed to explain its pattern in Jordan. What is very clear is that IBD patients often report symptoms referable to the gastrointestinal tract, without objective indication of current disease activity. This leaves both the patient and physician with a major problem, since treatment would involve strong immune-modulating agents that are associated with strong side effects, high financial cost, and difficulty in accomplishing effective symptom relief. The present study has assessed IBD cases from a gastrointestinal clinic in Central Jordan with the intent to report the epidemiologic and clinical features of IBD.

Methods

A retrospective chart review of all patients diagnosed with IBD was used to collect study data. All patients diagnosed with IBD who were referred to a hospital-affiliated gastrointestinal clinic between 2007 and 2010 were included. IBD diag-

noses were based on the typical clinical symptoms, laboratory data, endoscopic findings and histological confirmation of UC or CD. All information regarding demographics, family history of IBD, major extra-intestinal manifestations, extent of IBD, treatment details, need for surgical treatment, and co-existence of other diseases were reviewed by the investigators. The study was approved by the local Ethics Committee at the hospital.

Statistical analysis

All statistical analyses were performed using SPSS version 17 (SPSS Inc., Chicago IL.). Measured values were expressed as frequencies and percentages.

Results

A total of 64 IBD patients were included in this study. Epidemiologic characteristics of the studied sample are presented in Table 1. Twenty-two patients were diagnosed with UC and 42 patients with CD. The UC/CD ratio was greater than 1:2. The age at onset of IBD in CD cases was 21–40 years, and in UC cases it was 21–30 years. There was a female predominance, with a female/male ratio of 2.67 for UC and 0.71 for CD. Forty-one (58.6%) IBD patients were non-smokers. A positive family history of IBD was present in 6.3% of CD patients and 22.7% of those with UC.

Table 1 Demographic Characteristics of Patients in the Overall Sample (N=64)

Variables	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Gender:			
Female	16 (72.7%)	20 (47.6%)	36 (51.4)
Male	6 (27.3%)	22 (52.4%)	28 (40)
Smoking:			
Smoker	3 (13.6%)	20 (41.7%)	23 (32.9%)
Non Smoker	19 (86.4%)	22 (45.8%)	41 (58.6%)
Family History:			
Positive Family History	5 (22.7%)	7 (6.3%)	12 (17.1%)
Negative Family History	17 (77.3%)	39 (81.3%)	56 (80%)

The patients' age ranged between 10 and 76 (see Table 2). Symptoms appeared before age 40 years in two-thirds of the patients. The time interval from onset of symptoms to diagnosis in UC was less than 6 months and for CD more than 6 months.

Table 2 Distribution of Age by Disease

Disease	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Variable			
Patients Age			
10-20	1 (4.5%)	2(4.2%)	3 (4.3%)
21-30	9 (40.9%)	15 (31.3%)	24 (34.3%)
31-40	5 (22.7%)	14 (29.2%)	19 (27.1%)
41-50	3 (13.6%)	10 (20.8%)	13 (18.6%)
51-60	3 (13.6%)	3 (6.3%)	6 (8.6%)
61-70	1 (4.5%)	2 (4.2%)	3 (4.3%)
71-80	0%	2 (4.2%)	2 (2.9%)
Age of patient at onset of disease :			
10-20	4 (18.3%)	6 (12.5%)	10(14.3%)
21-30	14 (63.6%)	20 (41.7%)	34 (48.6%)
31-40	0%	13(27.1%)	13(18.6%)
41-50	1 (4.5)	4 (8.3%)	5 (7.1%)
51-60	1 (4.5%)	3 (6.3%)	4 (5.7%)
61-70	0%	1 (2.1%)	1 (1.4%)
71-80	0%	1 (2.1%)	1 (1.4%)
Duration between First Consultation & Diagnosis:			
0 - <6 Months	15(68.2%)	0%	15(21.4%)
6 Months - 1 Year	3 (13.6%)	12 (41.7%)	15 (21.4%)
1 - 2 Years	4 (18.2)	8(27.1%)	12 (25%)
2 - 3 Years	0%	8 (8.3%)	8 (11.4%)
3 - 4 Years	0%	13 (6.3%)	13 (18.6%)
4 - 5 Years	0%	2 (4.2%)	2 (2.9%)
5 - 6 Years	0%	2 (4.2%)	2 (2.9%)
6 - 7 Years	0%	2 (4.2%)	2 (2.9%)

The predominant form of UC was left-sided colitis, which affected almost 40.9% [9] of the studied sample, while Pancolitis was present in 9 [40.9%] patients (see Table 3).

Table 3 Distribution of the Disease in Ulcerative Colitis Patients (N=22)

Distribution of the Disease	Frequency (F)	Percentage (%)
Left sided colitis	9	(40.9%)
Pancolitis	9	(40.9%)
Proctitis	4	(18.2%)

Table 4 shows that both small and large bowel involvement was seen in 91.7% of patients with CD. However, 14.6% of patients had Crohn's colitis, while isolated small bowel involvement was seen in only 2.1% of patients.

Table4 Distribution of the Disease in Crohn's Patients (N=48)

Distribution of the Disease	Frequency (F)	Percentage (%)
Ileocolitis	26	(54.1%)
Colitis	7	(14.6%)
Ileitis	18	(37.5%)
Gastroduodenitis	1	(2.1%)

Extra-intestinal manifestations appeared in 23% of UC patients and in 29.4% of those with CD. Among the extra-intestinal manifestations of IBD, oral ulcers and spondyloarthropathy were most frequently presented in UC and CD patients (see Table 5).

Notably, in a comparison between the clinical characteristics and presentation of CD and UC (Table 5), patients with CD had a significantly higher incidence of abdominal pain and weight loss.

Table 5 Clinical Manifestations

Disease	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Variable			
Clinical Manifestations			
Diarrhoea with Mucous	17(77.3%)	31(64.6%)	48(68.6%)
Rectal Bleeding	18(81.8%)	8(16.7%)	26(37.1%)
Abdominal Pain	17(77.3%)	40(83.3%)	57(81.4%)
Weight Loss	1(4.5%)	15(31.3%)	16(22.9%)
Fistula	0%	6(12.5%)	6(8.6%)
Perianal Abscess	0%	3(6.3%)	3(4.3%)
Anal Fissure	0%	6(12.5%)	6(8.6%)
Perforation	0%	1(2.1%)	1(1.4%)
Extra intestinal manifestation :			
Uveitis	1(4.5%)	3(6.3%)	4(8.3%)
Rash	0%	1(2.1%)	1(1.4%)
Oral Ulcers	1(4.5%)	8(16.7%)	9(12.9%)
Spondyloarthropathy	3(13.6%)	6(12.5%)	9(12.9%)

The majority of patients had an elevated level of Erythrocyte Sedimentation Rate (ESR), C- Reactive Protein (CRP), low albumin level, and were anaemic (see Table 6).

Table 6 Clinical Characteristics of Disease

Disease	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Variable			
ESR			
Elevated ESR	11(50%)	35(72.9%)	46(65.7%)
Normal ESR	11(50%)	13(27.1%)	24(34.3%)
CRP :			
Elevated CRP	22(100%)	39(81.3%)	61(87.1%)
Normal CRP	0%	9(18.6%)	9(12.9%)
Albumin:			
Low Albumin	15(68.2%)	28(58.3%)	43(61.4%)
Normal Albumin	7(31.8%)	18(37.5%)	25(35.7%)
Anaemia:			
Anaemic	17(77.3%)	28(58.3%)	45(64.3%)
Not Anaemic	5(22.7%)	20(41.7%)	25(35.7%)

Table 7 shows patient histopathology and endoscopic procedures.

Table 7 Endoscopic Features and Biopsy Results

Disease	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Variable			
Endoscopic feature			
Ulcers	15(68.2%)	20(41.7%)	35(50%)
Erythema & erosions	5(22.7%)	15(31.3%)	20(28.6%)
Aphthous ulcers	0%	3(6.3%)	3(4.3%)
Cobble stone appearance	0%	3(12.6%)	3(4.3%)
Skip lesions	0%	4(8.3%)	4(5.7%)
Pseudopolyps	2(9.1%)	4(8.3%)	6(8.6%)
Fissuring	0%	4(8.3%)	4(5.7%)
Biopsy results:			
Increase in Inflammatory Cells	22(100%)	48(100%)	70(100%)
Cryptitis	7(31.8%)	14(29.2%)	21(30%)
Crypt Abscess	7(31.8%)	17(35.4%)	24(34.3%)
Non Caseating Granuloma	0%	8(16.6%)	8(11.4%)
Granulation Tissues	0%	7(14.6%)	7(10%)

The drugs used were: Asacol (mesalazine) in 53 (75.7%) patients, Imuran (azathioprine) in 27 (38.6%), Steroid in 45 (64.3%), Infliximab in 2 (2.9%) (see Table 8).

Table 8 Treatment Used For UC and CD (N = 70)

Disease	Ulcerative Colitis (F/ %)	Crohn's Disease (F/ %)	Overall Total (F/ %)
Variable			
Treatment			
Mesalamine	15(68.2%)	38(79.2%)	53(75.7%)
Azathioprine	10(45.5%)	17(35.4%)	27(38.6%)
Steroid	15(68.2%)	30(62.5%)	45(64.3%)
Infliximab	0%	2(4.2%)	2(2.9%)
Humira	0%	2(4.2%)	2(2.9%)
Surgery	0%	2(4.2%)	2(2.9%)

Discussion

The aim of our study was to determine the epidemiologic profile and clinical features of Jordanian patients with IBD. Most previous reports from Jordan discussed an increasing rate of UC and rarity of CD (Ghazzawe and Al-Marayat, 2007). However, in this study, a higher rate of CD was observed among the 64 patients referred to the gastroenterology clinic in Amman during 2007 - 2010. In comparison with previous studies, the UC to CD ratio was lower. The ratio of female to male patients was 2.67 in UC and 0.71 in CD in our study, which showed female gender dominance for IBD that is incongruent with studies in several Asian countries (Duphare et al., 1994; Trallori et al., 1996; Wiercinska-Drapalo et al., 2005). In Western countries, UC tends to be slightly more common in males, whereas CD is marginally more common in females. Differences in sample sizes and in the numbers of patients in each group (UC and CD) possibly account for this inconsistency; future studies should employ larger sample sizes. In this study the mean ages at onset for UC and CD were relatively similar. The age at onset of IBD was between 20 - 30 years, which is consistent with the first

peak in Western countries. Our study did not show a second peak between the ages of 50 – 70 years, most likely due to hesitancy and delay by both physicians and patients to performing diagnostic endoscopies on older patients. Those patients might have been given other diagnoses such as infectious colitis, hemorrhoids, or anal fissures.

Another finding showed that 22.7% of UC and 6.3 % of CD patients had positive family histories of IBD. This proportion for UC was higher than reports from several Western countries and Asia. Reports from various countries in this regard are inconsistent; therefore more genetic studies are required to reveal a definite familial tendency towards IBD. There was a predominance of left-sided colitis in the study. These findings are in accordance with previous reports from studies, yet pancolitis was much less frequent. Pancolitis was more frequent in patients who developed UC at a younger age. This finding supported the results of a study by Wiercinska-Drapalo et al. (2005). Colon involvement in CD patients was more frequent in this study, which confirmed the results of a study by Aghazadeh et al. (2005), but contrasted with results from other studies (Yang et al., 2000). In accordance with several reports, 75.7% of the patients were prescribed Asacol (mesalazine), while approximately 33.0% took Imuran (azathioprine) and 64.3% received steroids.

Among extra-intestinal manifestations, oral ulcers and spondyloarthropathy were predominant in both UC and CD patients in our study, in contrast to previous reports (Bernstein et al., 2001). Primary sclerosing cholangitis was the main extra-intestinal complication in a study by Yazdanbod et al. (2011). Supporting other reports, the predominant clinical presentation in our patients was abdominal pain. Other frequent symptoms among UC patients were rectal bleeding and diarrhea. Diarrhea and weight loss were common problems in patients with CD. The paper demonstrated the similarities and differences in demographic and clinical characteristics of IBD patients in Jordan as compared to studies conducted in other countries. Various limitations should be taken into consideration when evaluating the results of this retrospective chart review. First, patients were referred to a hospital-affiliated gastrointestinal clinic because of a suspected IBD. Therefore, the results may not generalize to other community or non-referred samples. Second, the sample size was small and future investigation would benefit from investigating much larger sample. Last, the data collected were retrospective in nature.

In conclusion, the occurrence of CD was much higher than UC. The age of onset for IBD was generally before 40, with a predominance of female patients. The most common clinical form of UC was left-sided colitis and colon involvement in patients with CD. Mainly, the pattern of IBD was mild to moderate, with fewer patients undergoing surgery. We believe that we are only reporting the tip of the iceberg, and that the actual disease characteristics are yet to be explored. The variety in the appearance of the disease has altered over the years, requiring greater attentiveness by primary-care physicians and gastroenterologists to better diagnose IBD. A campaign is needed to inform the public about this growing worldwide problem across all age groups, specifically in the context of modern dietary changes.

Conflict of Interest: Neither of the authors has a personal or financial conflict of interest.

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